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STIC Database Tracking Number: 10/751388

TO: Ben Sackey
Location: 5c31 / 5c18
Art Unit: 1626
Wednesday, August 09, 2006

Case Serial Number: 10/751388

From: Noble Jarrell
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Search Notes

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SEARCH REQUEST FORM

Requester's Full Name: Ben Sackey Examiner #: 73489 Date: 8/10/06

Art Unit: 1120 Phone Number: 2-0704 Serial Number: 10/1751388

Location (Bldg/Room#): Ray 5 B3 (Mailbox #): Results Format Preferred (circle): PAPER DISK

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: Isotopically enriched N-Substituted Piperazine

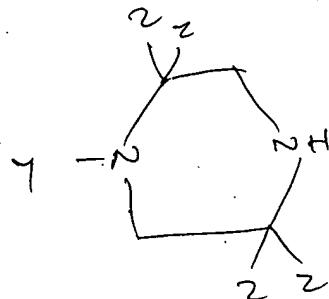
Inventors (please provide full names): Pappu et al.

Earliest Priority Date: _____

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.



γ, 2 are as defined in claim 1.

*Noble
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DICTIONARY FILE UPDATES: 8 AUG 2006 HIGHEST RN 899769-93-8

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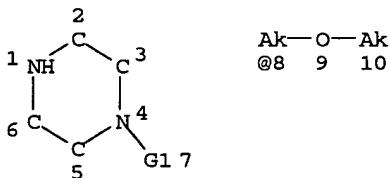
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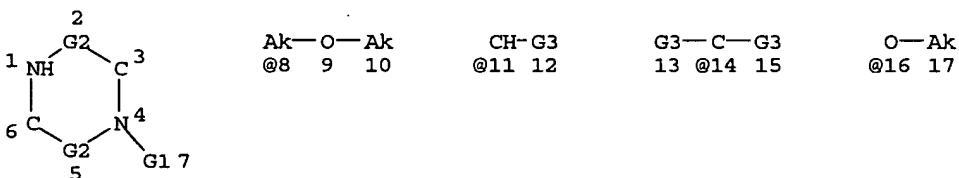
=> d que sta 117
L10 STR



VAR G1=AK/8
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DEFAULT ECLEVEL IS LIMITED

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RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L12 SCR 2039
L14 70 SEA FILE=REGISTRY SSS FUL L10 AND L12
L15 STR



VAR G1=AK/8
VAR G2=CH2/11/14/CD2/CT2
VAR G3=X/AK/8/16
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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 17

STEREO ATTRIBUTES: NONE

L17 70 SEA FILE=REGISTRY SUB=L14 SSS FUL L15

100.0% PROCESSED 70 ITERATIONS
SEARCH TIME: 00.00.01

70 ANSWERS

=> b hcap
FILE 'HCAPLUS' ENTERED AT 10:09:35 ON 09 AUG 2006
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FILE COVERS 1907 - 9 Aug 2006 VOL 145 ISS 7
FILE LAST UPDATED: 8 Aug 2006 (20060808/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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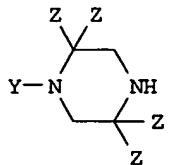
L20 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:592130 HCAPLUS
DN 143:115574
TI Preparation of isotopically enriched N-substituted piperazines
IN Pappin, Darryl J. C.; Pillai, Sasi; Coull, James
M.
PA Applica Corp., USA
SO U.S. Pat. Appl. Publ., 29 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 6

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US2005148773	A1	20050707	2004US-0751388	20040105 <--
WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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PRAI	2004US-0751353	A	20040105
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	2004US-0751387	A	20040105
	2004US-0751388	A	20040105 <--
	2004US-0822639	A	20040412
	2004US-0852730	A	20040524

OS MARPAT 143:115574

GI



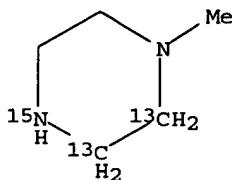
AB Isotopically enriched N-substituted piperazines (I) or salts thereof, comprising one or more heavy atom isotopes (Y = straight chain or branched C1-6 alkyl or C1-6 alkyl ether group wherein the carbon atoms of the alkyl group or alkyl ether group each independently comprise linked hydrogen, deuterium or fluorine atoms; Z = independently H, F, Cl, Br, iodine, an amino acid side chain, a straight chain or branched C1-6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H or F atoms, a straight chain or branched C1-6 alkyl ether group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen or fluorine atoms), or a straight chain or branched C1-6 alkoxy group that may optionally contain a substituted or unsubstituted aryl group; wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen or fluorine atoms; wherein the N-methylpiperazine is isotopically enriched with either of ¹³C and/or ¹⁵N) are prepared. N-substituted piperazines can be used as intermediates in the synthesis of N-substituted piperazine acetic acids which in turn can be used as intermediates in the synthesis of active esters of N-substituted piperazine acetic acid. The active esters of N-substituted piperazine acetic acid can be used as labeling reagents to prepare a set of isobaric labeling reagents. The set of isobaric labeling reagents can be used to label analytes such as peptides, proteins, amino acids, oligonucleotides, DNA, RNA, lipids, carbohydrates, steroids, small mols. and the like (no data). Thus, to a stirring solution of 1.18 g (11.83 mmol) N-methylpiperazine in 15 mL toluene at room temperature was added 1 g (5.91 mmol) of Et bromoacetate-1,2-¹³C dropwise, over a period of 15 min. The reaction mixture was then heated in an oil bath at 90° for 4 h, cooled to room temperature, filtered to remove the off-white solid to give, after workup on the combined filtrate and washings, 1.10 g (quant.) of 4-methylpiperazine-1-acetic acid Et ester-1,2-¹³C (II) as an off-white oil. II (1.1 g) was refluxed in water for 24 h to give 780 mg 4-methylpiperazine-1-acetic acid-1,2-¹³C.

IT 856188-37-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of isotopically enriched N-substituted piperazines as isobaric labeling reagents)

RN 856188-37-9 HCPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl- (9CI) (CA INDEX NAME)

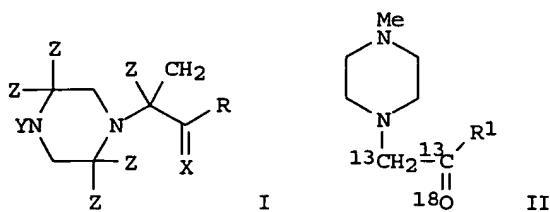


IT 856188-37-9P 856188-43-7P 856188-49-3P
 857502-99-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of isotopically enriched N-substituted piperazines as isobaric labeling reagents)

IT 856188-38-0P 856188-44-8P 856188-50-6P
 857503-04-9P 857503-05-0P 857503-06-1P
 857503-07-2P 857503-08-3P 857503-09-4P
 857503-10-7P 857503-11-8P 857503-12-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of isotopically enriched N-substituted piperazines as isobaric labeling reagents)

L20 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:592129 HCAPLUS
 DN 143:97398
 TI Preparation of active esters of N-substituted piperazine acetic acids, including isotopically enriched versions
 IN Dey, Subhakar; Pappin, Darryl J. C.; Purkayastha, Subhasish; Pillai, Sasi; Coull, James M.
 PA Applica Corp., USA
 SO U.S. Pat. Appl. Publ., 33 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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	2004US-0751388	A	20040105 <--		
	2004US-0822639	A	20040412		
	2004US-0852730	A	20040524		
OS	MARPAT 143:97398				
GI					



AB In some embodiments, this invention pertains to active esters of N-substituted piperazine acetic acid I (R = leaving group; X = O, S; Y = C1-C6 alkyl, C1-C6 alkyl ether; Z = H, 2H, F, Cl, Br, iodide, amino acid side chain, C1-C6 alkyl, C1-C6 alkyl ether), including isotopically enriched versions thereof. In some embodiments, this invention pertains to methods for the preparation of active esters of N-substituted piperazine acetic acid, including isotopically enriched versions thereof. For example, the isotopically labeled N-methylpiperazine II (R1 = 18OH) reacted with the trifluoroacetic acid ester of N-hydroxysuccinimide to give the succinate II (R1 = OR2, R2 = succinimido).

IT 856188-38-0P

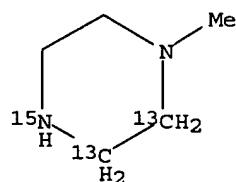
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of active esters of N-substituted piperazine acetic acids and their labeled derivs.)

RN 856188-38-0 HCAPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

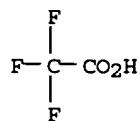
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CRN 856188-37-9
CMF C5 H12 N2



CM 2

CRN 76-05-1
CMF C2 H F3 O2



IT 856188-38-0P 856188-44-8P 856188-50-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of active esters of N-substituted piperazine acetic acids and their labeled derivs.)

L20 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:592027 HCAPLUS

DN 143:93642
 TI Mixtures of isobarically labeled analytes and fragments ions derived
 therefrom

IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James
 M.

PA Applera Corp., USA

SO U.S. Pat. Appl. Publ., 36 pp., Cont.-in-part of U.S. Ser. No. 751,353.
 CODEN: USXXCO

DT Patent

LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US2005147985	A1	20050707	2004US-0822639	20040412
	US2005147982	A1	20050707	2004US-0751353	20040105
	US2005148087	A1	20050707	2004US-0852730	20040524
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	2004US-0751353	A2	20040105		
	2004US-0751354	A	20040105		
	2004US-0751387	A	20040105		
	2004US-0751388	A	20040105 <--		
	2004US-0822639	A2	20040412		
	2004US-0852730	A	20040524		

OS MARPAT 143:93642

AB This invention pertains to mixts. of isobarically labeled analytes and
 fragment ions thereof.

IT 856188-38-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (mixts. of isobarically labeled analytes and fragments ions derived
 therefrom)

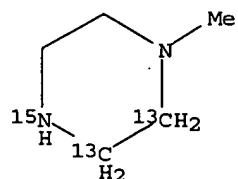
RN 856188-38-0 HCAPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA
 INDEX NAME)

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CRN 856188-37-9

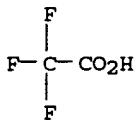
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CM 2

CRN 76-05-1

CMF C2 H F3 O2



IT 856188-38-0P 856188-44-8P 856188-50-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(mixts. of isobarically labeled analytes and fragments ions derived
therefrom)

L20 ANSWER 4 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN

AN 2005:588426 HCAPLUS

DN 143:115568

TI Preparation of isotopically enriched N-substituted piperazine-1-acetic acids

IN Dey, Subhakar; Pappin, Darryl J. c.; Purkayastha, Subhasish; Pillai, Sasi; Coull, James M.

PA Applera Corp., USA

SO U.S. Pat. Appl. Publ., 29 pp.

CODEN: USXXCO

DT Patent

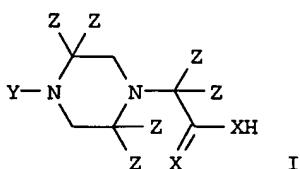
DI *face*
LA English

FAN CNT 6

PATENT NO.

PATENT NO.		KIND	DATE	
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	WO2005068446	A1	20050728	2005-07-28
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PRAI	2004US-0751353	A	20040105	
	2004US-0751354	A	20040105	
	2004US-0751387	A	20040105	
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2004US-0832730
OS MARPAT 143:115568
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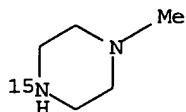
AB Isotopically enriched N-substituted piperazine-1-acetic acids (I) or salts

thereof, comprising one or more heavy atom isotopes [X = O, S; Y = straight chain or branched C1-6 alkyl or C1-6 alkyl ether group wherein the carbon atoms of the alkyl group or alkyl ether group each independently comprise linked hydrogen, deuterium or F atoms; Z = independently H, deuterium, F, Cl, Br, iodine, an amino acid side chain, a straight chain or branched C1-6 alkyl group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms), a straight chain or branched C1-6 alkyl ether group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms, or a straight chain or branched C1-6 alkoxy group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms)] are prepared N-substituted piperazines can be used as intermediates in the synthesis of N-substituted piperazine acetic acids which in turn can be used as intermediates in the synthesis of active esters of N-substituted piperazine acetic acid. The active esters of N-substituted piperazine acetic acid can be used as labeling reagents to prepare a set of isobaric labeling reagents. The set of isobaric labeling reagents can be used to label analytes such as peptides, proteins, amino acids, oligonucleotides, DNA, RNA, lipids, carbohydrates, steroids, small mols. and the like. Thus, to a stirring solution of 1.18 g (11.83 mmol) N-methylpiperazine in 15 mL toluene at room temperature was added 1 g (5.91 mmol) of Et bromoacetate-1,2-13C dropwise, over a period of 15 min. The reaction mixture was then heated in an oil bath at 90° for 4 h, cooled to room temperature, filtered to remove the off-white solid to give, after workup on the combined filtrate and washings, 1.10 g (quant.) of 4-methylpiperazine-1-acetic acid Et ester-1,2-13C (II) as an off-white oil. II (1.1 g) was refluxed in water for 24 h to give 780 mg 4-methylpiperazine-1-acetic acid-1,2-13C.

IT 857502-99-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of isotopically enriched N-substituted piperazine-1-acetic acids as isobaric labeling reagents)

RN 857502-99-9 HCPLUS

CN Piperazine-15N, 4-methyl-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

IT 857502-99-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of isotopically enriched N-substituted piperazine-1-acetic acids as isobaric labeling reagents)

IT 856188-37-9P 856188-38-0P 856188-43-7P
 856188-44-8P 856188-49-3P 856188-50-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of isotopically enriched N-substituted piperazine-1-acetic acids as isobaric labeling reagents)

L20 ANSWER 5 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:588349 HCPLUS
 DN 143:112150

TI Isobarically labeled analytes and fragment ions derived therefrom
 IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James
 M.
 PA Applera Corporation, USA
 SO U.S. Pat. Appl. Publ., 88 pp., Cont.-in-part of U.S. Ser. No. 822,639.
 CODEN: USXXCO

DT Patent
 LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US2005148087	A1	20050707	2004US-0852730	20040524
	US2005147982	A1	20050707	2004US-0751353	20040105
	US2005147985	A1	20050707	2004US-0822639	20040412
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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	2004US-0751387	A	20040105		
	2004US-0751388	A	20040105 <--		
	2004US-0852730	A	20040524		

OS MARPAT 143:112150

AB This invention pertains to isobarically labeled analytes and fragment ions thereof.

IT 856188-38-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (isobarically labeled analytes and fragment ions derived therefrom)

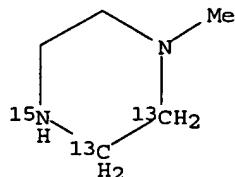
RN 856188-38-0 HCPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA
 INDEX NAME)

CM 1

CRN 856188-37-9

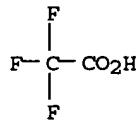
CMF C5 H12 N2



CM 2

CRN 76-05-1

CMF C2 H F3 O2



IT 856188-38-0P 856188-44-8P 856188-50-6P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (isobarically labeled analytes and fragment ions derived therefrom)
 IT 741683-84-1P, 1-Piperazineacetic-carboxy-13C acid
 741683-85-2P, 1-Piperazineacetic- α -13C acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (isobarically labeled analytes and fragment ions derived therefrom)

L20 ANSWER 6 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN

AN 2005:588336 HCPLUS

DN 143:93635

TI Mixtures of isobarically labeled analytes and fragments ions derived
therefrom

IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James
M.

PA Applera Corporation, USA

SO U.S. Pat. Appl. Publ., 29 pp.
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US2005147982	A1	20050707	2004US-0751353	20040105
	US2005147985	A1	20050707	2004US-0822639	20040412
	US2005148087	A1	20050707	2004US-0852730	20040524
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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PRAI	2004US-0751353	A2	20040105
	2004US-0751354	A	20040105
	2004US-0751387	A	20040105
	2004US-0751388	A	20040105 <--
	2004US-0822639	A2	20040412
	2004US-0852730	A	20040524

AB This invention pertains to mixts. of isobarically labeled analytes and
fragment ions thereof.

IT 856188-50-6P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (mixts. of isobarically labeled analytes and fragments ions derived
therefrom)

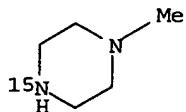
RN 856188-50-6 HCPLUS

CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

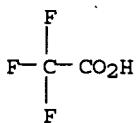
CM 1

CRN 856188-49-3

CMF C5 H12 N2



CM 2

CRN 76-05-1
CMF C2 H F3 O2

IT 856188-50-6P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (mixts. of isobarically labeled analytes and fragments ions derived therefrom)

IT 856188-38-0P 856188-44-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (mixts. of isobarically labeled analytes and fragments ions derived therefrom)

L20 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2004:681717 HCAPLUS

DN 141:202794

TI Methods, mixtures, kits and compositions pertaining to analyte determination

IN Pappin, Darryl J. C.; Bartlet-Jones, Michael

PA Applera Corporation, USA

SO PCT Int. Appl., 105 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO2004070352	A2	20040819	2004WO-US02077	20040127
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	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU2004209401	A1	20040819	2004AU-0209401	20040127
	CA---2488584	AA	20040819	2004CA-2488584	20040127
	US2004219685	A1	20041104	2004US-0765264	20040127
	US2004220412	A1	20041104	2004US-0765267	20040127
	US2004219686	A1	20041104	2004US-0765458	20040127
	EP---1588145	A2	20051026	2004EP-0705571	20040127
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US2006105416	A1	20060518	2005US-0319685	20051228

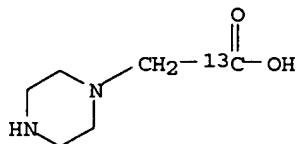
PRAI 2003US-443612P P 20030130
 2004US-0765267 A1 20040127
 2004WO-US02077 W 20040127

AB This invention pertains to methods, mixts., kits and/or compns. for the determination of analytes by mass anal. using unique labeling reagents or sets of unique labeling reagents. The labeling reagents can be isomeric or isobaric and can be used to produce mixts. suitable for multiplex anal. of the labeled analytes.

IT 741683-84-1P, 1-Piperazineacetic-carboxy-13C acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (methods, mixts., kits and compns. pertaining to analyte determination)

RN 741683-84-1 HCPLUS

CN 1-Piperazineacetic-carboxy-13C acid (9CI) (CA INDEX NAME)



IT 741683-84-1P, 1-Piperazineacetic-carboxy-13C acid
 741683-85-2P, 1-Piperazineacetic- α -13C acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (methods, mixts., kits and compns. pertaining to analyte determination)

=> d bib abs hitstr retable 120 tot

L20 ANSWER 1 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN

AN 2005:592130 HCPLUS

DN 143:115574

TI Preparation of isotopically enriched N-substituted piperazines

IN Pappin, Darryl J. C.; Pillai, Sasi; Coull, James M.

PA Applera Corp., USA

SO U.S. Pat. Appl. Publ., 29 pp.
 CODEN: USXXCO

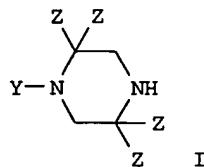
DT Patent

LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US2005148773	A1	20050707	2004US-0751388	20040105 <--
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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	RW: BW, GH, GM, KE, LS, MW, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	2004US-0751353	A	20040105		
	2004US-0751354	A	20040105		
	2004US-0751387	A	20040105		
	2004US-0751388	A	20040105 <--		
	2004US-0822639	A	20040412		
	2004US-0852730	A	20040524		

OS MARPAT 143:115574
 GI



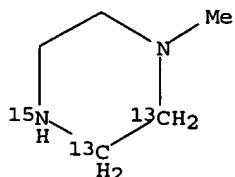
AB Isotopically enriched N-substituted piperazines (I) or salts thereof, comprising one or more heavy atom isotopes (Y = straight chain or branched C1-6 alkyl or C1-6 alkyl ether group wherein the carbon atoms of the alkyl group or alkyl ether group each independently comprise linked hydrogen, deuterium or fluorine atoms; Z = independently H, F, Cl, Br, iodine, an amino acid side chain, a straight chain or branched C1-6 alkyl group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H or F atoms, a straight chain or branched C1-6 alkyl ether group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen or fluorine atoms), or a straight chain or branched C1-6 alkoxy group that may optionally contain a substituted or unsubstituted aryl group; wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked hydrogen or fluorine atoms; wherein the N-methylpiperazine is isotopically enriched with either of ¹³C and/or ¹⁵N) are prepared. N-substituted piperazines can be used as intermediates in the synthesis of N-substituted piperazine acetic acids which in turn can be used as intermediates in the synthesis of active esters of N-substituted piperazine acetic acid. The active esters of N-substituted piperazine acetic acid can be used as labeling reagents to prepare a set of isobaric labeling reagents. The set of isobaric labeling reagents can be used to label analytes such as peptides, proteins, amino acids, oligonucleotides, DNA, RNA, lipids, carbohydrates, steroids, small mols. and the like (no data). Thus, to a stirring solution of 1.18 g (11.83 mmol) N-methylpiperazine in 15 mL toluene at room temperature was added 1 g (5.91 mmol) of Et bromoacetate-1,2-¹³C dropwise, over a period of 15 min. The reaction mixture was then heated in an oil bath at 90° for 4 h, cooled to room temperature, filtered to remove the off-white solid to give, after workup on the combined filtrate and washings, 1.10 g (quant.) of 4-methylpiperazine-1-acetic acid Et ester-1,2-¹³C (II) as an off-white oil. II (1.1 g) was refluxed in water for 24 h to give 780 mg 4-methylpiperazine-1-acetic acid-1,2-¹³C.

IT 856188-37-9P 856188-43-7P 856188-49-3P
 857502-99-9P

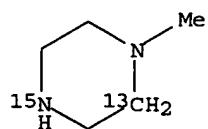
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of isotopically enriched N-substituted piperazines as isobaric labeling reagents)

RN 856188-37-9 HCPLUS

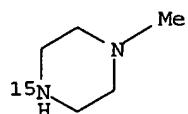
CN Piperazine-2,3-¹³C2-1-¹⁵N, 4-methyl- (9CI) (CA INDEX NAME)



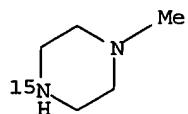
RN 856188-43-7 HCPLUS
 CN Piperazine-3-13C-1-15N, 4-methyl- (9CI) (CA INDEX NAME)



RN 856188-49-3 HCPLUS
 CN Piperazine-15N, 4-methyl- (9CI) (CA INDEX NAME)



RN 857502-99-9 HCPLUS
 CN Piperazine-15N, 4-methyl-, dihydrochloride (9CI) (CA INDEX NAME)

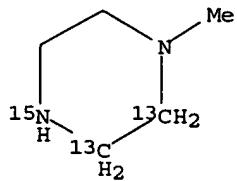


●2 HCl

IT 856188-38-0P 856188-44-8P 856188-50-6P
 857503-04-9P 857503-05-0P 857503-06-1P
 857503-07-2P 857503-08-3P 857503-09-4P
 857503-10-7P 857503-11-8P 857503-12-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of isotopically enriched N-substituted piperazines as isobaric
 labeling reagents)
 RN 856188-38-0 HCPLUS
 CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA
 INDEX NAME)

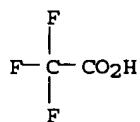
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CRN 856188-37-9
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CM 2

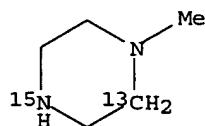
CRN 76-05-1
 CMF C2 H F3 O2



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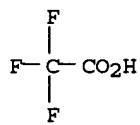
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CRN 856188-43-7
 CMF C5 H12 N2



CM 2

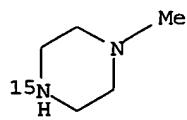
CRN 76-05-1
 CMF C2 H F3 O2



RN 856188-50-6 HCPLUS
 CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

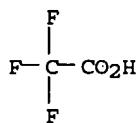
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CRN 856188-49-3
 CMF C5 H12 N2

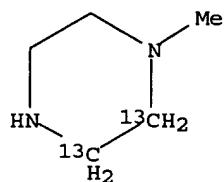


CM 2

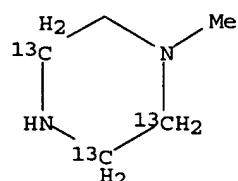
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 CMF C2 H F3 O2



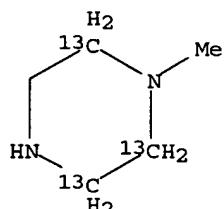
RN 857503-04-9 HCPLUS
 CN Piperazine-2,3-13C2, 1-methyl- (9CI) (CA INDEX NAME)



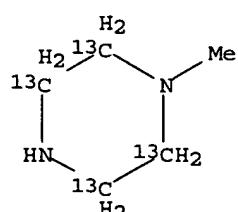
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 CN Piperazine-13C3, 1-methyl- (9CI) (CA INDEX NAME)



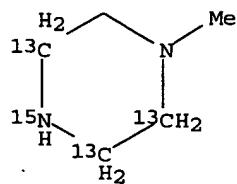
RN 857503-06-1 HCPLUS
 CN Piperazine-13C3, 4-methyl- (9CI) (CA INDEX NAME)



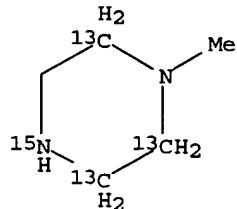
RN 857503-07-2 HCPLUS
 CN Piperazine-13C4, 1-methyl- (9CI) (CA INDEX NAME)



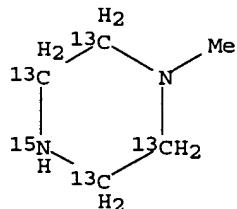
RN 857503-08-3 HCPLUS
 CN Piperazine-2,3,6-13C3-1-15N, 4-methyl- (9CI) (CA INDEX NAME)



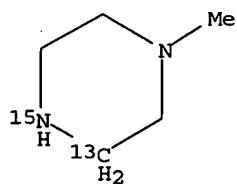
RN 857503-09-4 HCAPLUS
 CN Piperazine-2,3,5-13C3-1-15N, 4-methyl- (9CI) (CA INDEX NAME)



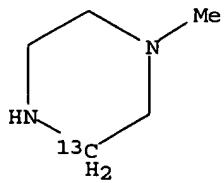
RN 857503-10-7 HCAPLUS
 CN Piperazine-13C4-15N, 4-methyl- (9CI) (CA INDEX NAME)



RN 857503-11-8 HCAPLUS
 CN Piperazine-2-13C-1-15N, 4-methyl- (9CI) (CA INDEX NAME)



RN 857503-12-9 HCAPLUS
 CN Piperazine-13C, 4-methyl- (9CI) (CA INDEX NAME)



L20 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:592129 HCAPLUS

DN 143:97398
TI Preparation of active esters of N-substituted piperazine acetic acids,
including isotopically enriched versions
IN Dey, Subhakar; Pappin, Darryl J. C.; Purkayastha, Subhasish;
Pillai, Sasi; Coull, James M.
PA Applera Corp., USA
SO U.S. Pat. Appl. Publ., 33 pp.
CODEN: USXXXCO

EDEN:

DI facente
LA English

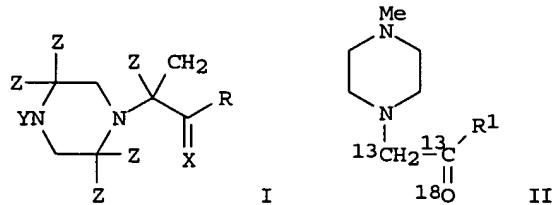
EAN, CNT 6

FAN:CN1 8
PATENT NO

PATENT NO.		KIND	DATE	APPLICATION NO.	DATE
PI	US2005148771	A1	20050707	2004US-0751354	20040105
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRAI	2004US-0751353	A	20040105		
	2004US-0751354	A	20040105		
	2004US-0751387	A	20040105		
	2004US-0751388	A	20040105 <--		
	2004US-0822639	A	20040412		
	2004US-0852730	A	20040524		

OS MARPAT 143:97398

GI



AB In some embodiments, this invention pertains to active esters of N-substituted piperazine acetic acid I (R = leaving group; X = O, S; Y = C1-C6 alkyl, C1-C6 alkyl ether; Z = H, 2H, F, Cl, Br, iodide, amino acid side chain, C1-C6 alkyl, C1-C6 alkyl ether), including isotopically enriched versions thereof. In some embodiments, this invention pertains to methods for the preparation of active esters of N-substituted piperazine acetic acid, including isotopically enriched versions thereof. For example, the isotopically labeled N-methylpiperazine II (R1 = 18OH) reacted with the trifluoroacetic acid ester of N-hydroxysuccinimide to give the succinate II (R1 = OR2, R2 = succinimido).

IT 856188-38-0P 856188-44-8P 856188-50-6P

RL: SPN (Synthetic preparation); PREP (Preparation)

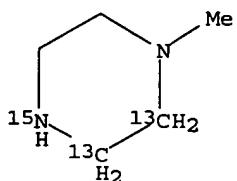
(preparation of active esters of N-substituted piperazine acetic acids and their labeled derivs.)

RN 856188-38-0 HCAPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

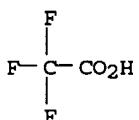
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CRN 856188-37-9
CMF C5 H12 N2



CM 2

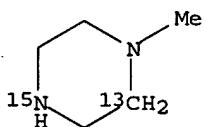
CRN 76-05-1
CMF C2 H F3 O2



RN 856188-44-8 HCAPLUS
CN Piperazine-3-13C-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

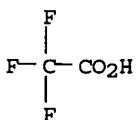
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CRN 856188-43-7
CMF C5 H12 N2



CM 2

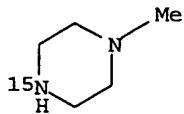
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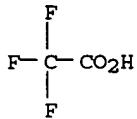
RN 856188-50-6 HCAPLUS
CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 856188-49-3
CMF C5 H12 N2



CM 2

CRN 76-05-1
CMF C2 H F3 O2

L20 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:592027 HCAPLUS
 DN 143:93642
 TI Mixtures of isobarically labeled analytes and fragments ions derived therefrom
 IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James M.
 PA Applica Corp., USA
 SO U.S. Pat. Appl. Publ., 36 pp., Cont.-in-part of U.S. Ser. No. 751,353.
 CODEN: USXXCO

DT Patent
LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US2005147985	A1	20050707	2004US-0822639	20040412
	US2005147982	A1	20050707	2004US-0751353	20040105
	US2005148087	A1	20050707	2004US-0852730	20040524
	WO2005068446	A1	20050728	2005WO-US00223	20050105 <--
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PRAI	2004US-0751353	A2	20040105		
	2004US-0751354	A	20040105		
	2004US-0751387	A	20040105		
	2004US-0751388	A	20040105 <--		
	2004US-0822639	A2	20040412		
	2004US-0852730	A	20040524		

OS MARPAT 143:93642
 AB This invention pertains to mixts. of isobarically labeled analytes and fragment ions thereof.
 IT 856188-38-0P 856188-44-8P 856188-50-6P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(mixts. of isobarically labeled analytes and fragments ions derived therefrom)

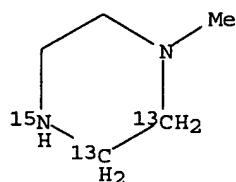
RN 856188-38-0 HCPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

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CRN 856188-37-9

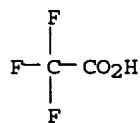
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CM 2

CRN 76-05-1

CMF C2 H F3 O2



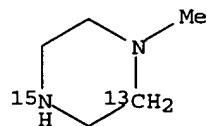
RN 856188-44-8 HCPLUS

CN Piperazine-3-13C-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 856188-43-7

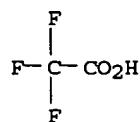
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CM 2

CRN 76-05-1

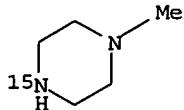
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RN 856188-50-6 HCAPLUS
 CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

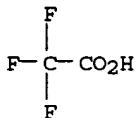
CM 1

CRN 856188-49-3
 CMF C5 H12 N2



CM 2

CRN 76-05-1
 CMF C2 H F3 O2



L20 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:588426 HCAPLUS
 DN 143:115568
 TI Preparation of isotopically enriched N-substituted piperazine-1-acetic acids
 IN Dey, Subhakar; Pappin, Darryl J. c.; Purkayastha, Subhasish; Pillai, Sasi; Coull, James M.
 PA Applica Corp., USA
 SO U.S. Pat. Appl. Publ., 29 pp.
 CODEN: USXXCO

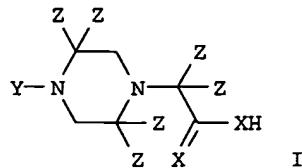
DT Patent
 LA English

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PRAI	2004US-0751353	A	20040105		
	2004US-0751354	A	20040105		
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	2004US-0751388	A	20040105 <--		
	2004US-0822639	A	20040412		
	2004US-0852730	A	20040524		

OS MARPAT 143:115568

GI



AB Isotopically enriched N-substituted piperazine-1-acetic acids (I) or salts thereof, comprising one or more heavy atom isotopes [X = O, S; Y = straight chain or branched C1-6 alkyl or C1-6 alkyl ether group wherein the carbon atoms of the alkyl group or alkyl ether group each independently comprise linked hydrogen, deuterium or F atoms; Z = independently H, deuterium, F, Cl, Br, iodine, an amino acid side chain, a straight chain or branched C1-6 alkyl group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms), a straight chain or branched C1-6 alkyl ether group that may optionally contain a substituted or unsubstituted aryl group wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms, or a straight chain or branched C1-6 alkoxy group that may optionally contain a substituted or unsubstituted aryl group (wherein the carbon atoms of the alkyl and aryl groups each independently comprise linked H, deuterium or F atoms)] are prepared. N-substituted piperazines can be used as intermediates in the synthesis of N-substituted piperazine acetic acids which in turn can be used as intermediates in the synthesis of active esters of N-substituted piperazine acetic acid. The active esters of N-substituted piperazine acetic acid can be used as labeling reagents to prepare a set of isobaric labeling reagents. The set of isobaric labeling reagents can be used to label analytes such as peptides, proteins, amino acids, oligonucleotides, DNA, RNA, lipids, carbohydrates, steroids, small mols. and the like. Thus, to a stirring solution of 1.18 g (11.83 mmol) N-methylpiperazine in 15 mL toluene at room temperature was added 1 g (5.91 mmol) of Et bromoacetate-1,2-13C dropwise, over a period of 15 min. The reaction mixture was then heated in an oil bath at 90° for 4 h, cooled to room temperature, filtered to remove the off-white solid to give, after workup on the combined filtrate and washings, 1.10 g (quant.) of 4-methylpiperazine-1-acetic acid Et ester-1,2-13C (II) as an off-white oil. II (1.1 g) was refluxed in water for 24 h to give 780 mg 4-methylpiperazine-1-acetic acid-1,2-13C.

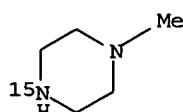
IT 857502-99-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of isotopically enriched N-substituted piperazine-1-acetic acids as isobaric labeling reagents)

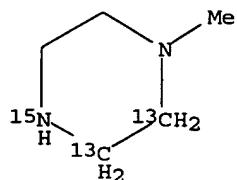
RN 857502-99-9 HCPLUS

CN Piperazine-15N, 4-methyl-, dihydrochloride (9CI) (CA INDEX NAME)



●2 HCl

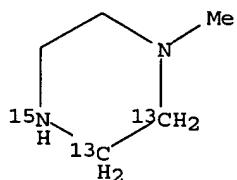
IT 856188-37-9P 856188-38-0P 856188-43-7P
 856188-44-8P 856188-49-3P 856188-50-6P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of isotopically enriched N-substituted piperazine-1-acetic
 acids as isobaric labeling reagents)
 RN 856188-37-9 HCAPLUS
 CN Piperazine-2,3-13C2-1-15N, 4-methyl- (9CI) (CA INDEX NAME)



RN 856188-38-0 HCAPLUS
 CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA
 INDEX NAME)

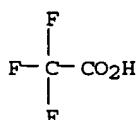
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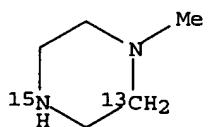


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CRN 76-05-1
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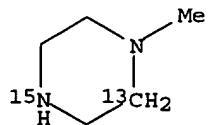


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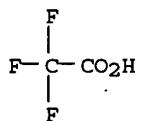
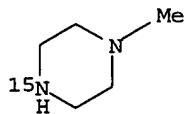


RN 856188-44-8 HCAPLUS
 CN Piperazine-3-13C-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX
 NAME)

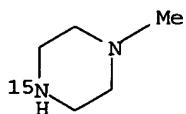
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CMF C5 H12 N2

CM 2

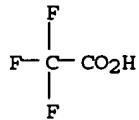
CRN 76-05-1
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CN Piperazine-15N, 4-methyl- (9CI) (CA INDEX NAME)RN 856188-50-6 HCPLUS
CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

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CRN 856188-49-3
CMF C5 H12 N2

CM 2

CRN 76-05-1
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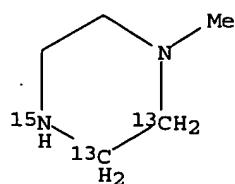


L20 ANSWER 5 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:588349 HCPLUS
 DN 143:112150
 TI Isobarically labeled analytes and fragment ions derived therefrom
 IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James
 M.
 PA Appiera Corporation, USA
 SO U.S. Pat. Appl. Publ., 88 pp., Cont.-in-part of U.S. Ser. No. 822,639.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 6

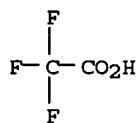
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	US2005147985	A1	20050707	2004US-0822639	20040412
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	2004US-0751388	A	20040105 <--		
	2004US-0852730	A	20040524		
OS	MARPAT 143:112150				
AB	This invention pertains to isobarically labeled analytes and fragment ions thereof.				
IT	856188-38-0P 856188-44-8P 856188-50-6P RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (isobarically labeled analytes and fragment ions derived therefrom)				
RN	856188-38-0 HCPLUS				
CN	Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)				

CM 1

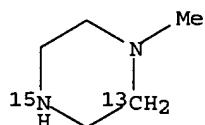
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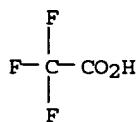
CM 2

CRN 76-05-1
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CN Piperazine-3-13C-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

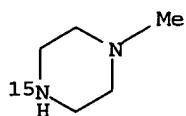
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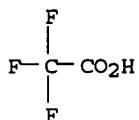
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CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

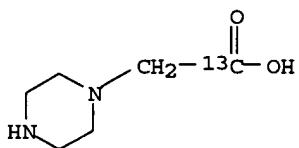
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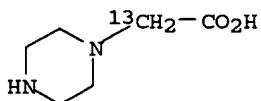
CM 2

CRN 76-05-1
CMF C2 H F3 O2

IT 741683-84-1P, 1-Piperazineacetic-carboxy-13C acid
 741683-85-2P, 1-Piperazineacetic- α -13C acid
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (isobarically labeled analytes and fragment ions derived therefrom)
 RN 741683-84-1 HCPLUS
 CN 1-Piperazineacetic-carboxy-13C acid (9CI) (CA INDEX NAME)



RN 741683-85-2 HCPLUS
 CN 1-Piperazineacetic- α -13C acid (9CI) (CA INDEX NAME)



L20 ANSWER 6 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:588336 HCPLUS
 DN 143:93635
 TI Mixtures of isobarically labeled analytes and fragments ions derived
 therefrom
 IN Pappin, Darryl J. C.; Purkayastha, Subhasish; Coull, James
 M.
 PA Applera Corporation, USA
 SO U.S. Pat. Appl. Publ., 29 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 6
 PATENT NO. KIND DATE APPLICATION NO. DATE
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 PI US2005147982 A1 20050707 2004US-0751353 20040105

US2005147985 A1 20050707 2004US-0822639 20040412
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 NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
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 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
 EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
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PRAI 2004US-0751353 A2 20040105
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 2004US-0822639 A2 20040412
 2004US-0852730 A 20040524

AB This invention pertains to mixts. of isobarically labeled analytes and
 fragment ions thereof.

IT 856188-50-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (mixts. of isobarically labeled analytes and fragments ions derived
 therefrom)

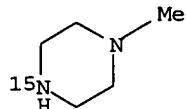
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CN Piperazine-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

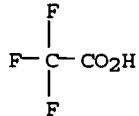
CRN 856188-49-3

CMF C5 H12 N2



CM 2

CRN 76-05-1
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IT 856188-38-0P 856188-44-8P

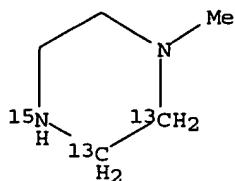
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (mixts. of isobarically labeled analytes and fragments ions derived
 therefrom)

RN 856188-38-0 HCPLUS

CN Piperazine-2,3-13C2-1-15N, 4-methyl-, bis(trifluoroacetate) (9CI) (CA
 INDEX NAME)

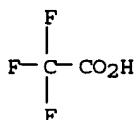
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CRN 856188-37-9
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CM 2

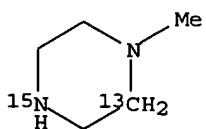
CRN 76-05-1
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RN 856188-44-8 HCPLUS
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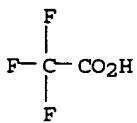
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CRN 856188-43-7
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CM 2

CRN 76-05-1
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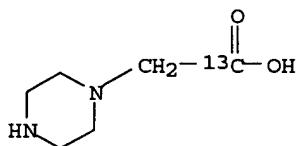
L20 ANSWER 7 OF 7 HCPLUS COPYRIGHT 2006 ACS on STN
 AN 2004:681717 HCPLUS
 DN 141:202794
 TI Methods, mixtures, kits and compositions pertaining to analyte determination
 IN Pappin, Darryl J. C.; Bartlet-Jones, Michael

PA Applera Corporation, USA
 SO PCT Int. Appl., 105 pp.
 CODEN: PIXXD2

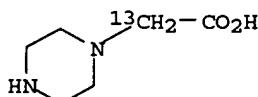
DT Patent
 LA English

FAN.CNT 1

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PI	WO2004070352	A2	20040819	2004WO-US02077	20040127
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	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU2004209401	A1	20040819	2004AU-0209401	20040127
	CA--2488584	AA	20040819	2004CA-2488584	20040127
	US2004219685	A1	20041104	2004US-0765264	20040127
	US2004220412	A1	20041104	2004US-0765267	20040127
	US2004219686	A1	20041104	2004US-0765458	20040127
	EP--1588145	A2	20051026	2004EP-0705571	20040127
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US2006105416	A1	20060518	2005US-0319685	20051228
PRAI	2003US-443612P	P	20030130		
	2004US-0765267	A1	20040127		
	2004WO-US02077	W	20040127		
AB	This invention pertains to methods, mixts., kits and/or compns. for the determination of analytes by mass anal. using unique labeling reagents or sets of unique labeling reagents. The labeling reagents can be isomeric or isobaric and can be used to produce mixts. suitable for multiplex anal. of the labeled analytes.				
IT	741683-84-1P, 1-Piperazineacetic-carboxy-13C acid 741683-85-2P, 1-Piperazineacetic- α -13C acid RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (methods, mixts., kits and compns. pertaining to analyte determination)				
RN	741683-84-1 HCPLUS				
CN	1-Piperazineacetic-carboxy-13C acid (9CI) (CA INDEX NAME)				



RN 741683-85-2 HCPLUS
 CN 1-Piperazineacetic- α -13C acid (9CI) (CA INDEX NAME)



=> d his

(FILE 'HOME' ENTERED AT 09:55:12 ON 09 AUG 2006)

noble jarrell 09/08/2006

FILE 'HCAPLUS' ENTERED AT 09:55:31 ON 09 AUG 2006
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E PAPPIN D/AU
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E PILLAI S/AU
L3 278 E3-22
E PILLAI SASI/AU
L4 11 E3-4
E COULL J/AU
L5 150 E3-10
L6 437 APPLERA/CS, PA

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L7 TRA L1 1- RN : 138 TERMS

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L8 138 SEA L7
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L11 50 L10
L12 SCR 2039
L13 1 L10 AND L12
L14 70 L10 AND L12 FULL
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L15 STR L10
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FILE 'REGISTRY' ENTERED AT 10:07:30 ON 09 AUG 2006
L18 18 L17 AND L8

FILE 'HCAPLUS' ENTERED AT 10:07:42 ON 09 AUG 2006

L19 38 L17
L20 7 L19 AND L1-6
L21 31 L19 NOT L20

FILE 'HCAOLD' ENTERED AT 10:08:19 ON 09 AUG 2006
L22 0 L17

FILE 'HCAPLUS' ENTERED AT 10:08:30 ON 09 AUG 2006
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L24 31 L21, L23

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